

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 December 2006 (14.12.2006)

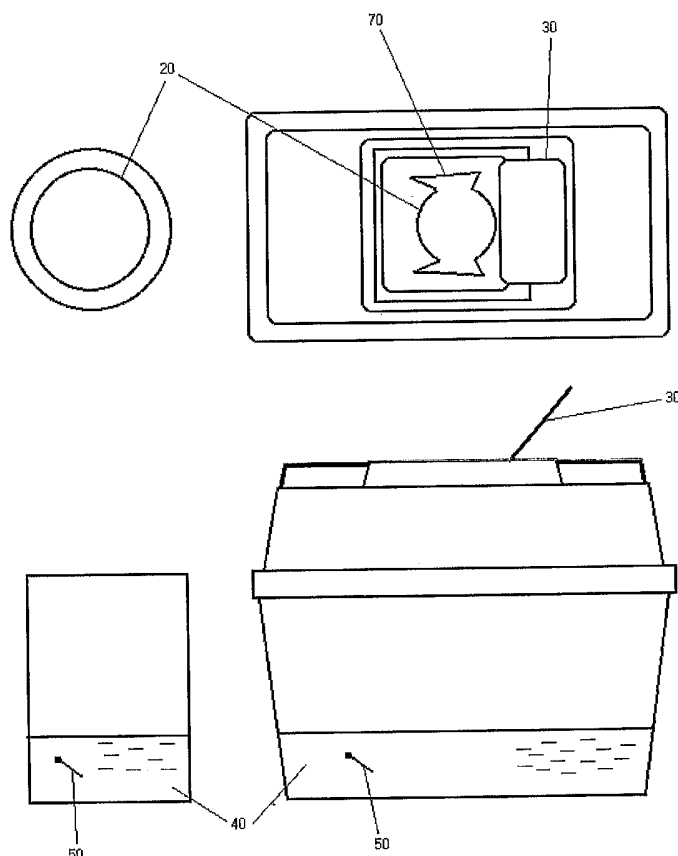
PCT

(10) International Publication Number
WO 2006/132604 A1

- (51) International Patent Classification:
A61M 5/32 (2006.01) A61B 19/02 (2006.01)
A61L 11/00 (2006.01) B65D 81/00 (2006.01)
- (21) International Application Number:
PCT/SG2006/000142
- (22) International Filing Date: 5 June 2006 (05.06.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PI 20052597 8 June 2005 (08.06.2005) MY
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,

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(54) Title: SHARPS DISPOSAL



(57) Abstract: A disposal system for sharps (50), such as contaminated needles or syringes, comprises a container (10) for receiving and storing the sharps (50). A sharp (50) instrument is inserted through an entry opening (20). When the sharps (50) within the container (10) has reached a certain level, a coagulant (40) is poured into the container (10). This coagulant (40) hardens and encompasses the sharps (50). This process can be repeated at intervals until the container (10) is full, or it may be done only once, when the container (10) is filled with sharps (50). The lid (30) is then closed and the container (10) ready for disposal in a landfill or some other appropriate location.

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RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

Sharps Disposal

Field of Invention

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This invention relates to a system for safe and effective disposal of contaminated sharp instruments, such as needles or syringes.

Background of the Invention

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Safe and effective disposal of contaminated sharp instruments is of great concern to medical and public health workers. These instruments are sometimes referred to as "sharps". This concern is caused by the possibility of transmittable diseases such as AIDS and Hepatitis B being contracted by medical personnel or others who frequently handle these contaminated materials. This is more afflictive when dealing with sharp instruments such as needles or syringes, in that the contagions responsible for the transmission of these diseases usually enter the body through breaks in the skin. Accordingly, there is a need for a system which safely and effectively disposes contaminated sharps, including storage, transport, and ultimate disposal.

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There are existing inventions that may seem to have a similar functionality as the invention described herein. One example is the Sharps Disposal System (United States Patent 5,038,929). This apparatus receives an entire syringe in individual compartments, and immerses it in liquid which hardens to contain the syringe and any contaminants. It is capable of recording the number of syringes it receives if that is so desired. The invention described herein is different from the present invention in that there are no individual compartments for each syringe. This is beneficial when there are other sharp objects, other than syringes that need to be disposed of. If the sharp objects are smaller than the size of a syringe, a whole compartment is not used, and hence space is saved.

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Another invention is the Interim storage and permanent disposal of medical sharps (United States Patent 6,142,303). This system differs from the invention described

herein in that it uses a completely different method of encompassing and containing the sharps within the receptacle. It utilizes a granular or powdery substance such as calcium hypochlorite to inhibit microorganism growth and a separate, cementitious slurry that hardens around the sharps being stored inside the receptacle.

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Accordingly, it is a principal object of the invention herein to provide a system for the safe and effective disposal of contaminated sharps.

It is also an object of the invention herein to provide a sharps disposal system which isolates and secures sharps from after it is used until final disposal.

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Summary of the Invention

A disposal system for contaminated sharps comprises a container having an entry opening. A sharp instrument may be inserted through the entry opening, and stored in the container. After an interim period a coagulent may be poured into the container to harden and encompass the sharps which are inside. This can be done at several intervals.

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According to other aspects of the invention, the coagulent may be an epoxy or polymer which solidifies upon mixing. The coagulent may have anti-bacterial or disinfectant agents which assist in containing the spread of contagions in the container.

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Other and more specific objects and features of the invention herein will appear in the following description of the preferred embodiment and the claims, taken together with the drawings.

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Brief Description of the Drawings

FIG. 1 is shows the top view and the side view of a disposal system according to the present invention, including the container and lid.

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Detailed Description of the Invention

In accordance with the present invention, Figure 1 shows a disposal container 10 for receiving and storing contaminated sharps, such as needles 50, having a lid 30. There is an entry opening 20 at the location of the lid 30 where the sharps 50 are inserted.

The preferred embodiment of the container 10 generally comprises side walls, a bottom wall, a top wall and a lid 30 pivotally attached to the top wall. The embodiment of the container wherein such a container is cylindrical in shape will comprise a side wall running around the circumference of the container, a bottom wall, a top wall, and a lid pivotally attached to the top wall. The top wall may be made from transparent material to facilitate visual inspection of level of contents.

When the level of sharps 50 in the container 10 reaches a certain level, said container may be filled with a coagulent 40 which is poured into said container. The coagulent 40 will harden and encompass the sharps 50 within the container 10. The coagulent 40 may be an epoxy, polymer, latex, or a derivative of latex, and whichever possible may include anti-bacterial or disinfectant properties in order that the spread of any contaminants be inhibited.

The entry opening may have a separation means that assists in the removal of sharps from their original holders, as an alternative to the sharps being cut by a cutter before disposal. This may be in the form of a built-in notch 70.

When the sharps within the container 10 has reached a certain level, the coagulent 40 may be poured in to harden and encompass the sharps. This may be done at intervals or as often as required, and depends on the rate at which sharps are being inserted into the container. It is ideal to add the coagulent 40 when the sharps are at a level that is not so high that any contaminants or contagions are exposed for too long. When the container 10 is full it may disposed in an appropriate location, such as a landfill.

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Alternatively, the coagulant 40 could be added only once into the container 10. This is done after the sharps 50 have filled up the container 10. The coagulant 40 hardens and securely seals the sharps 50 within the container 10, preventing the said sharps from moving around or falling out of the container 10.

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The disposable container according to the invention herein and the preferred embodiment described above provides for total storage, protection and accountability with respect to used sharps from the time after their use to their final disposal. The system is easy to operate and of low cost. Accordingly, the disposable container described herein achieves the objects of this invention.

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It will be appreciated that the preferred embodiment is illustrative only and that various changes may be made by those skilled in the art without departing from the spirit and scope of the invention, which is limited only by the following claims.

Claims

1. A disposal system for sharps, comprising:
5 a container, said container having an entry opening through which sharps are inserted; and
a coagulant, said coagulant able to harden after being poured into the container and encompass any sharps within the container.
- 10 2. The disposal system as defined in claim 1 further comprising a cutter located adjacent to the entry opening.
3. The disposal system as defined in claim 1 wherein said coagulant is chosen from one of the following group including epoxy, latex and polymer.
- 15 4. The disposal system as defined in claim 1 wherein said coagulant has disinfectant properties.
5. The disposal system as defined in claim 1 further comprising a lid which is pivotally attached to the container, for covering said opening, and sealing the contents within.
20
6. The disposal system as defined in claim 1 wherein the top wall of said container is made of transparent material to facilitate visual inspection of level of contents.
- 25 7. A disposal system as defined in claim 1 further comprising a means of separating sharps from their original holders.

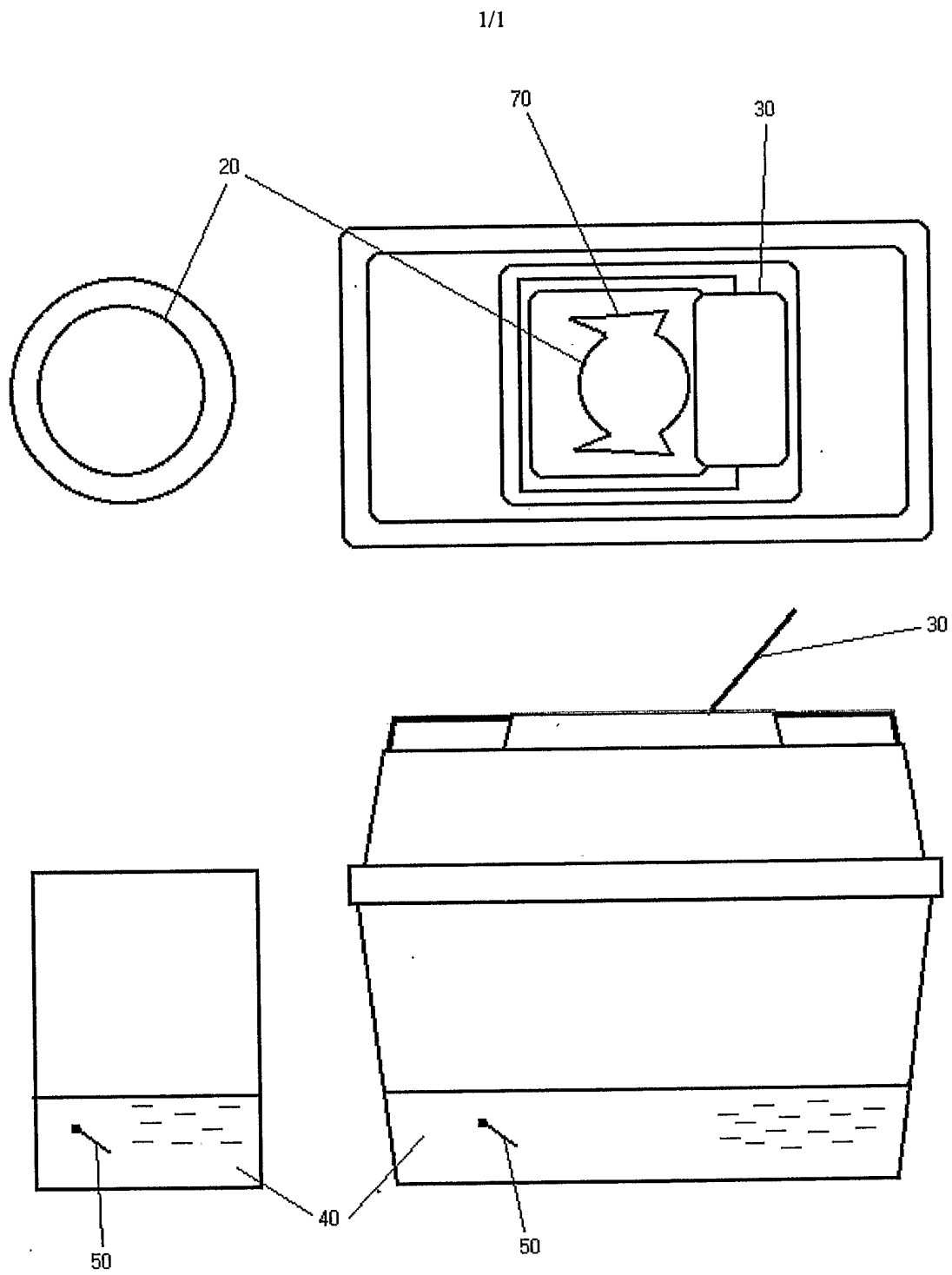


Figure 1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG2006/000142

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

A61M 5/32 (2006.01) A61L 11/00 (2006.01)

A61B 19/02 (2006.01) B65D 81/00 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 DWPI: IPC A61M; A61B 5/- & keywords: (sharps, needle, syringe, scalpel, dispose, waste, coagulant, harden, set, solidify, resin, cement, epoxy, container, receptacle, bin, storage, collect, receive) and similar terms.

Space: keywords: (sharps disposal), (needle disposal), (sharps bin harden), (sharps bin resin)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<input checked="" type="checkbox"/> X Y	US 6010444 A (HONEYCUTT ET AL) 4 January 2000 Whole document	<u>1, 3-6</u> 2,7
<input checked="" type="checkbox"/> X Y	US 6142303 A (DENDY ET AL) 7 November 2000 Whole document	<u>1, 4-6</u> 2,7
<input checked="" type="checkbox"/> X Y	US 4919569 A (WITTENZELLNER) 24 April 1990 Whole document	<u>1, 3-6</u> 2,7

Further documents are listed in the continuation of Box C See patent family annex

* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 24 July 2006	Date of mailing of the international search report 27 JUL 2006
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG2006/000142

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
<u>X</u> Y	US 5038929 A (KUBOFCIK) 13 August 1991 Whole document	<u>1, 4-6</u> 2,7
<u>X</u> Y	FR 2767670 A1 (GERARD) 5 March 1999 Whole document	<u>1</u> 2,7
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Y	JP 10-33600 A (IRYO KAGAKU KK) 10 February 1998 Whole document	7
Y	JP 6-169956 A (KODAMA KK ET AL) 21 June 1994 Whole document	2
Y	US 5076178 A (KOHL ET AL) 31 December 1991 Whole document	2
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A	US 6332534 B1 (HAMMETT) 25 December 2001 Whole document	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SG2006/000142

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	6010444	AU	88263/98	CA	2301253	WO	9912667
US	6142303	NONE					
US	4919569	NONE					
US	5038929	NONE					
FR	2767670	NONE					
US	6087548	AU	15543/97	CA	2246291	EP	1019101
		FR	2744921	WO	9729791		
US	6561352	US	2002100706				
CN	1603019	NONE					
JP	1033600	NONE					
JP	6169956	NONE					
US	5076178	AU	14101/92	CA	2103711	EP	0571505
		WO	9214096				
JP	6171849	NONE					
US	5322165	NONE					
US	6332534	NONE					
<p>Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.</p> <p style="text-align: right;">END OF ANNEX</p>							